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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Siddhartha Chaudhuri

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EXAMINER

STAHL, MICHAEL J

ART UNIT

PAPER NUMBER

2874

DATE MAILED: 06/03/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

AYY

Office Action Summary	Application N .	Applicant(s)	
	09/775,429	CHAUDHURI ET AL.	
	Examiner	Art Unit	
	Mike Stahl	2874	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 February 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 and 21-26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 2, 4-10, 21 and 23-26 is/are rejected.
- 7) ☒ Claim(s) 1, 3, 9 and 22 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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This office action is in response to the amendment filed February 5, 2004. The changes to the claims are acknowledged. Claims 1-10 and 21-26 are pending. The corrected versions of figs. 2-4 are approved by the examiner.

Claim Objections

Claims 1 and 9 are objected to because of the following informality. In claim 1, lines 15-16 refer to "analyzing the data injected by the signal generator". It is noted that applicant intentionally changed lines 10-11 to recite that the signal generator injects "the connection verification signal" rather than "data". This change should also be applied to lines 15-16, e.g. "a first signal analyzer . . . for analyzing the connection verification signal injected by the signal generator". The same comments apply to claim 9.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

Claims 1, 4-9, and 23-26 are rejected under 35 U.S.C. 102(a) as being anticipated by Gerstel et al. (US 5867289).

Gerstel discloses an optical switch device (see fig. 2) including: a switch fabric (including a number of individual switch fabrics 204 corresponding to each wavelength); a plurality of input ports through which incoming data contained in a bearer signal passes to the switch fabric, the

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plurality of input ports receiving data from a wave division demultiplexer **203**; a plurality of output ports through which outgoing data passes from the switch fabric to transmit the data to a wave division multiplexer **205**; a first demultiplexing device **203** coupled to the input ports of the switch fabric to inject an optical connection verification signal into the switch fabric; a signal generator **202** coupled to the first demultiplexing device **203** for injecting the connection verification signal into the switch fabric at a frequency (corresponding to a 1.3 micron wavelength) which differs from a frequency (corresponding to a 1.5 micron wavelength) of the bearer signal; a first multiplexing device **205** coupled to at least one of the plurality of output ports of the switch fabric; and a first signal analyzer **210/220** for analyzing the injected data (verification signal). Thus the Gerstel switch as just described satisfies claims 1 and 4, and the method of using it satisfies claims 9 and 23. In the event applicant traverses the examiner's use of one element to account for two different limitations, e.g. by using **203** as both the wave division demultiplexer and the first demultiplexing device, it is noted that there are actually two demultiplexers on the left side of fig. 2, one of them being directly labeled **203**, so the reference may be optionally interpreted such that one demultiplexer acts as the recited wave division demultiplexer while the other one acts as the first demultiplexing device. The same idea holds for the two multiplexers on the right side of fig. 2. Either interpretation meets the requirements of claims 1, 4, 9, and 23.

As to claims 5 and 24, the demultiplexers **203** act as splitters to split an incoming signal to at least first and second signals (of different wavelengths), the first and second signals being received by respective switch fabrics **204** (with corresponding wavelengths). As to claims 6 and 25, at least one of the plurality of output ports can receive signals from the first and second

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fabrics **204** (e.g. by way of multiplexers **205**). As to claims 7 and 26, there is at least one signal analyzer **210/220** coupled to one or more of the plurality of output ports for analyzing data from the first and second switch fabrics.

As to claim 8, an add/drop multiplexer comprising drop ports **207** and add ports **208** is connected to the switch fabric.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-2, 8-10, and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schroeder et al. (US 6198856).

Schroeder discloses an optical switch device (see fig. 2A) including: a switch fabric **11**; a plurality of input ports **14, 16, 18, 22** for admitting incoming data contained in a bearer signal to the switch fabric; a plurality of output ports **24, 26, 28, 32** for passing data from the switch fabric; a first demultiplexing device **50** ("test column") coupled to at least one of the plurality of input ports to inject an optical connection verification signal into the switch fabric; a signal generator **56** coupled to the first demultiplexing device **50** for injecting the connection verification signal into the switch fabric; a first multiplexing device **60** ("test row") coupled to at least one of the plurality of output ports; and a first signal analyzer **57** coupled to the first multiplexing device **60** for analyzing the connection verification signal injected by the signal

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generator. It is considered inherent that the device receives incoming *data* on a *bearer signal*, since the reference is directed to handling optical communication signals (see the background section).

Schroeder does not specifically teach that the data into the input ports is received from a wave division demultiplexer, or that the outgoing data is transmitted from the output ports to a wave division multiplexer. However, the reference discusses dense wavelength division multiplexing (DWDM) and is considered applicable thereto. It would have been obvious to a person having ordinary skill in the art to use the Schroeder device with a DWDM network, and to adapt the device by providing a wave division demultiplexer to separate multiplexed signals into their constituent wavelengths prior to entering the input ports, so that each wavelength channel could be advantageously switched independently of the other wavelength channels. Similarly, it would have been obvious to a skilled person to employ a wave division multiplexer to remultiplex the switched wavelength channels for further transmission along a common fiber, as is well known in the art, in order to avoid the need to provide a separate fiber for each wavelength channel.

Schroeder also does not conveniently teach using a test signal (connection verification signal) having a frequency which is different from a frequency of the bearer signal. However, this practice is already well known in the art (see e.g. the discussion of supervisory signals in the Gerstel et al. reference cited above). Since Schroeder discloses that the switch may be tested while in use (col. 3 lines 20-24), it would have been obvious to a skilled person using the Schroeder device to ensure that the connection verification signal has a frequency which is out of

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the frequency band used by the bearer signal so as to avoid interference between the verification signal and the data signals.

The Schroeder device modified as proposed in the two immediately preceding paragraphs would have satisfied the requirements of claim 1, and the method of using the modified device would have met the limitations of claims 9 and 10.

As to claims 2 and 21, Schroeder does not disclose a second signal analyzer coupled to the first multiplexing device 50, and a multiplexer coupled between the first and second signal analyzers and the first multiplexing device. However, it would have been obvious to a person having ordinary skill in the art to provide a multiplexer and a second signal analyzer for redundancy purposes, or alternatively, for enabling the analysis of additional parameters which are not covered by the first signal analyzer.

As to claim 8, Schroeder does not mention an add/drop multiplexer coupled to the switch fabric, but does suggest that the switch is intended to be used in a typical wavelength division multiplexed system (col. 1 lines 28-35). Add/drop multiplexers are already well known in the art. It would have been obvious to a skilled person to couple an add/drop multiplexer to the Schroeder switch in order to enable customary adding or dropping of wavelength channels from the network of which the switch is a part.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out

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the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Response to Arguments

Applicant's remarks concerning the applicability of the Schroeder et al. and Gerstel et al. references have been considered. The previous rejections have been revised in an attempt to clarify the examiner's interpretation and/or address certain issues raised in the remarks.

Allowable Subject Matter

Claims 3 and 22 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims, and if the language avoids the above objection to base claims 1 or 9.

As to claims 3 and 22, the applied references do not disclose or suggest a second demultiplexing device coupled to at least one of the plurality of input ports and a second signal analyzer coupled to the second demultiplexing device for analyzing data extracted from the input ports on a polling basis. It is noted that "data" here refers to data which came into the switch on the bearer signal, and is distinct from the connection verification signal added by the signal generator. The applied references are primarily concerned with analyzing the connection verification signals. Although some embodiments of the Gerstel et al. reference involve analyzing the data signal after it has passed completely through the switch, the references do not

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mention analyzing the data signals coming into the switch, nor do they mention analyzing such data signals on a polling basis.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication should be directed to Mike Stahl at (571) 272-2360. Official communications which are eligible for submission by facsimile and which pertain to this application may be faxed to (703) 872-9306. Inquiries of a general or clerical nature (e.g., a request for a missing form or paper, etc.) should be directed to the technical support staff supervisor at (571) 272-1626.

MJS

Michael J. Stahl
Patent Examiner
Art Unit 2874
May 30, 2004

ELENE E. KIM
PRIMARY EXAMINER

